

Sungwon Shin

Faculty Research Associate
Ph.D. of Civil Engineering

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EDUCATION

03/1993 B.S., Dept. of Earth & Marine Sciences, Hanyang University, Korea (GPA : 3.80/4.50).
03/1995 M.S., Underwater Acoustics, Ocean Acoustic Laboratory, Hanyang Univ., Korea (GPA : 3.78/4.00).
2000 - 2002 Ph.D. Student, Ocean Engr. Div., Texas A&M Univ. Advisor : Daniel T. Cox (GPA: 3.78/4.00).
09/2005 Ph.D. Candidate, Ocean Engr., Civil Engr. Dept., Oregon State Univ. Advisor : Daniel T. Cox.
(Dissertation: Laboratory Observations and Numerical Modeling of Inner Surf and Swash Zone Hydrodynamics on a Steep Slope)

PROFESSIONAL EXPERIENCE

10/2005 - Faculty Research Associate, O. H. Hinsdale Wave Research Lab., Oregon State Univ.
2002 – 09/2005 Graduate Research Assistant of Ocean Eng. Div., Civil Engr. Dept., Oregon State Univ.
Fall term, 2003 Graduate Teaching Assistant (grading and recitation for Fluid Mechanics), Civil Engr. Dept., Oregon State Univ.
2000 - 2002 Graduate Research Assistant of Ocean Eng. Div., Civil Engr. Dept., Texas A&M Univ.
1995 - 1998 Naval Officer (OCS 89th, Lieutenant Junior), Instructor and Department Head ('97~98) of Oceanography, Korea Naval Academy
1996 - 1998 Researcher in the Ocean and Envr. Division, Naval Ocean Research & Development Inst., Korea

RESEARCH EXPERIENCE

06/2006 “Performance curves for Tsunami generation in the Tsunami Wave Basin.” NEES project.
02 – 08/2006 “Physical Model Testing for Riprap Stability and Impact Pressure Santee Cooper Slope Protection Project.”
10 - 11/2005 “Physical Model Testing of Ooguruk Production Island; Wave Runup, Overtopping, Wave Reflection and Armor Stability.”
2002 - 2005 “Physical and Numerical modeling of Inner Surf and Swash Zone Hydrodynamics.” (Ph. D. Thesis topic)
03 - 05/2005 “A Large Scale Laboratory Measurement of Wave Transformation, Impact, and Overtopping on a

- Rubble Mound Breakwater.”
- 08 - 10/2004 “Pressure Gradients over a Barred Beach.” Oregon State Univ. (with Suzuki Takayuki)
- 2003 “Pile-Supported Vertical Wall Breakwaters Experiments.” Oregon State Univ. (PI: K.D. Suh).
- 2001 - 2002 "Laboratory Measurements of Void Fraction and Turbulence in the Bore Region of Surf Zone Waves." Texas A&M Univ.
- 1998 “A Study on Numerical Propagation Models in Ocean Acoustics.” Research Project Report, sponsored by Naval Ocean Research and Development Institute, Korea.
- 1997 - 1998 "ASW Tactics for Warships Equipped with Towed Array Sonar System." Research Project Report, sponsored by Agency for Defense Development, Korea.
- 1993 - 1995 "An Algorithm for Estimation of Environmental Signal in the Inhomogeneous Ocean." Research Project Report, sponsored by Agency for Defense Development, Korea.

HONORS AND AWARDS:

- Vice President of Korean Student Association at Oregon State University. (2004).
- Academic Excellence Scholarship, Hanyang Univ. (1989-1992).
- Graduate Cum Laude, Hanyang University. (1993).

PROFESSIONAL AFFILIATIONS:

- American Society of Civil Engineer (ASCE).
- American Geophysical Union (AGU).

RESEARCH INTERESTS:

Laboratory measurements and field observations for nearshore hydrodynamics; Sediment transport; Turbulence induced by wave breaking and bottom friction; Coastal engineering; Computational fluid dynamics.

TEACHING INTERESTS:

Fluid mechanics; Sediment transport; Coastal engineering; Hydraulics; Engineering Computation, Numerical modeling of environmental flow; Nearshore hydrodynamics and numerical modeling; Underwater acoustics.

PUBLICATIONS

PAPERS PUBLISHED OR IN PRESS:

- Shin, S., Cox, D.T. (2006). “Laboratory observations of inner surf and swash zone hydrodynamics on a steep slope.” *Continental Shelf Research*, 26, p 561 ~ 573.
- Suh, K.D., Shin, S., and Cox, D.T. (2006). "Hydrodynamic Characteristics of Pile-Supported Vertical Wall Breakwaters." *J. Waterw., Port, Coastal, Ocean Engrg.*, 132, p 83 ~ 96.
- Cox, D.T., and Shin, S. (2003) "Laboratory Measurements of Void Fraction and Turbulence in the Bore Region of Surf Zone Waves." *Journal of Engineering Mechanics*, 129(10), p 1197 ~ 1205.

Suzuki, T., Shin, S., Mori, N. and Cox, D.T. (2007). "Fluctuation of Pressure Gradients on a Barred Beach." *Journal of Geophysical Research* (submitted).

Suzuki, T., Shin, S., Mori, N. and Cox, D.T. (2007). "Statistical Modeling of Pressure Gradient on a Barred Beach." *Coastal Engineering Journal* (submitted).

MANUSCRIPTS IN PREPARATION:

Shin, S., Hsu, T., Scott, C.P., Cox, D.T. (2007). "A Large Scale Laboratory Observations and Model Predictions of Wave Breaking Turbulence on a Barred Beach." In preparation for *Coastal Engineering*.

ABSTRACTS AND PROCEEDINGS

PUBLISHED:

Shin, S., Cox, D. T., Kim, I. C., Yim, S. (2006) "A Large Scale Laboratory Measurement of Wave Transformation, Impact, and Overtopping on a Rubble Mound Breakwater." Proc. 30th Int. Conf. on Coast. Engrg.

Scott, C. P., Shin, S., Maddux, T., Cox, D. T. (2006) "The role of wave breaking turbulence in sediment suspension observed during CROSSTEX." Proc. 30th Int. Conf. on Coast. Engrg.

Scott, C., Shin, S., Cox, D. T. (2006). "Laboratory Observations and Model Predictions of Wave Breaking Turbulence on a Barred Beach." AGU Ocean Sciences '06.

Suh, K.-D., Shin, S., and Cox, D.T. (2005). "Hydrodynamic characteristics of curtain-wall-pile breakwaters." Proc. 31st IAHR Cong, Korea Water Resources Association, Sep. 11-16, 2005, COEX, Seoul, Korea, CD-ROM, 4002-4016.

Shin, S., Suzuki, T., and Cox, D.T. (2004). "Pressure gradient over a barred beach" Presented as poster in AGU fall meeting, 2004.

Scott, C. P., Cox, D.T., Shin, S., and Clayton, N. (2004). "Estimates of Surf Zone Turbulence in a Large-Scale Laboratory Flume." Proc. 29th Int. Conf. on Coast. Engrg.

Na, J., Oh, S., and Shin, S. (1994), "Simulation of Ocean Reverberation Signals," Proc. of WESTPRAC V, Vol. I, Korea, p 415 ~ 423.

SUBMITTED:

Cox, D. T., Shin, S. "Pore-pressure in rubble mound structures: RANS modeling and comparison to large-scale experiment." Coastal Structures 2007.

INVITED PRESENTATIONS:

Woods Hole Oceanographic Institution, Applied Ocean Physics & Engineering Seminar, November 2006.